CLAIMS

What is claimed is:

1. The method of creating a malleable, biocompatible polymer material for the repair or replacement of tissue, comprising the steps of:
    a. providing a vessel containing a slurry, said slurry comprising a plurality of polymer fibers and at least one suspension fluid, wherein the polymer fibers are substantially evenly dispersed and randomly oriented throughout the volume of the suspension fluid;
    b. applying a centrifugal force to said vessel containing said slurry, whereupon said centrifugal force serves to cause said polymer fibers to migrate through the suspension fluid and amass at a furthest extent of the vessel, forming a polymer material, with said polymer material comprising polymer fibers of sufficient length and sufficiently interlaced or interlocked to retard dissociation of said polymer fibers;
    c. removing said polymer material from said vessel.

2. The method of claim 1, wherein said slurry has a percentage mass of polymer fibers dispersed in the suspension fluid of less than 10% by weight.

3. The method of claim 1, wherein said slurry has a percentage mass of polymer fibers dispersed in the suspension fluid in the range of 3 to 5% by weight.

4. The method of claim 1, wherein at least a portion of said polymer is selected from the group consisting of collagen, chitosan, alginate, hyaluronic acid, poly-lactic acid, poly-caprolactone, and polyurethane.

5. The method of claim 1, wherein said slurry further comprises a biologically active agent.

6. The method of claim 1, wherein said slurry further comprises a biocompatible particulate.

7. The method of claim 1, wherein said particulate comprises tricalcium phosphate, hyaluronic acid, hydroxyapatite.

8. The method of claim 1, wherein said centrifugal force causes interlacing of at least some of said polymer fibers.

9. The method of claim 1, further comprising the steps of:

   d. drying said polymer putty, by extracting the suspension fluid that had been retained within the polymer putty;

   e. packaging said dried polymer putty to preserve sterility; and

   f. sterilizing said dried polymer putty; packaging said dried polymer putty to preserve sterility.

10. The method of claim 1, further comprising the step of:

   d. drying said polymer putty, by extracting the suspension fluid that had been retained within the polymer putty;

   e. packaging said dried polymer putty to preserve sterility;

   f. sterilizing said dried polymer material; and

   g. adding a rehydrating fluid to the dried polymer to restore malleability.

11. The method of claim 10, wherein said rehydrating fluid comprises a biologically active agent.

12. The method of claim 1, wherein said vessel comprises a mold, for producing a polymer material of a desired shape.

13. The method of claim 1, wherein said vessel further contains a reinforcing material.

14. The method of claim 13, wherein said reinforcing material is a mesh.

15. The method of claim 13, wherein said reinforcing material is fibrous threads.

16. A biocompatible composition suitable for implantation into a living being, said biocompatible composition comprising a plurality of polymer fibers, wherein said polymer fibers are of sufficient quantity and sufficiently processed to retard dissociation of individual polymer fibers upon implantation.

17. The composition of claim 16, wherein at least a portion of said polymer is selected from the group consisting of collagen, chitosan, alginate, hyaluronic acid, poly-lactic acid, poly-caprolactone, and polyurethane.

18. The composition of claim 16, further comprising a biologically active agent.

19. The composition of claim 16, further comprising a biocompatible particulate.

20. The composition of claim 19, wherein said particulate comprises tricalcium phosphate, hyaluronic acid, hydroxyapatite.

21. The composition of claim 16, further comprising a reinforcing material.

22. The method of creating a malleable, biocompatible polymer material for the repair or replacement of tissue, comprising the steps of:

a. providing a vessel containing a slurry, said slurry comprising a plurality of polymer fibers and at least one suspension fluid, wherein the polymer fibers are substantially randomly oriented throughout the volume of the suspension fluid;
b. applying a centrifugal force to said vessel containing said slurry, whereupon said centrifugal force serves to cause said polymer fibers to migrate through the suspension fluid and amass at a furthest extent of the vessel, forming a viscous polymer material;
c. removing said polymer material from said vessel.

23 The method of claim 22, wherein said tissue comprises bone.

24. A centrifuged biocompatible composition suitable for implantation into a living being, said biocompatible composition comprising a plurality of polymer fibers, wherein said polymer fibers are of sufficient quantity and sufficiently centrifuged to cause said composition to be viscous and self-supporting.

25. The composition of claim 24, wherein at least a portion of said polymer is selected from the group consisting of collagen, chitosan, alginate, hyaluronic acid, poly-lactic acid, poly-caprolactone, and polyurethane.

26. The composition of claim 24, further comprising a biologically active agent.

27. The composition of claim 24, further comprising a biocompatible particulate.

28. The composition of claim 24, wherein the composition has physical properties such that it may be injected.